SPECIAL APPLICATIONS – FULLSIZE K SERIES (4X4)

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Chevrolet/GMC Snowplow Prep Package – Option VYU, Pickup – K10703-K20943 ..... **SP— 3**
Chevrolet/GMC Snowplow Prep Package – Option VYU, Pickup – K30903-K30943 ..... **SP— 5**
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CMVSS 105 and FMVSS 105 Allowable Center of Gravity Calculation ..... **SP— 9**
CMVSS 105 and FMVSS 105 Allowable Center of Gravity Charts ..... **SP— 11**
CMVSS 135 and FMVSS 135 Allowable Center of Gravity Calculation ..... **SP— 12**
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For Snowplow Prep Pkg ..... **ELECTRICAL INFORMATION: Refer to Electrical – Pickups and Chassis Cabs**

SPECIAL APPLICATIONS – FULLSIZE K SERIES (4X4)

SNOWPLOW PREP PACKAGE (VYU)

The chart on the page SP-4 shows GMTG and General Motors approved models available with snowplow prep package-option VYU.

GM recommends that when a snowplow is mounted on a vehicle, only one passenger should accompany the driver. More than one passenger may exceed Front Gross Axle Weight Ratings.

Prior to installing a front mounted snowplow, the following process should be followed and necessary information obtained.

- Establish vehicle curb weight
- Establish chassis manufacturer's front and rear axle weight ratings
- Chevrolet and GMC truck dealers can provide availability, specifications, Gross Vehicle Weight Ratings (GVWR), and Front and Rear Gross Axle Weight Ratings (FGAWR/RGAWR). For vehicles already built, this information can be found on the certification label installed on driver's door/door frame or provided on the cover of the Incomplete Vehicle Document.

The following information should be obtained and provided by the manufacturers of snowplows and salt spreaders:

- Specifications, weights and center of gravity data
- Vehicle installation guidelines and instructions
- Calculation of weight distribution for the front and rear axles

The loaded vehicle with driver, passenger, aftermarket accessories, snowplows, spreader, and cargo must not exceed the Gross Vehicle Weight Rating (GVWR), and Front and Rear Gross Axle Weight Ratings. In addition, the completed curb weight vehicle, with all installed aftermarket accessories, snowplow, and spreader, and with 400 lbs. for vehicles less than 10,000 lbs. and 500 lbs. for vehicles greater than 10,000 lbs. distributed in the driver-passenger area of the vehicle, must have a center of gravity location that is located within the trapezoid formed by the coordinates A, B, C, D, H1 & H2, plus it must be to the rear of vertical line E and forward of vertical line F as defined in the ALLOWABLE CENTER OF GRAVITY CHARTS. If the center of gravity location does not fall within the specified trapezoid, ballast weight may be required to shift the center of gravity location until it falls within the specified trapezoid.

The snowplow manufacturer and the installer of the aftermarket equipment should determine the amount of rear ballast required to ensure that the vehicle, with the attached snowplow and aftermarket equipment, complies with the Allowable Center of Gravity Trapezoid and the resulting front and rear weight distribution ratio as defined in the Allowable Center of Gravity Charts published in this manual.

(Snowplow Prep Package — continued on next page)

(Snowplow Prep Package — continued from previous page)

Ballast Compensating Weight

The use of rear ballast weight may be required to prevent exceeding the Gross Axle Weight Rating of the front axle. The use of rear ballast weight may be required to ensure that the center of gravity location of the completed vehicle, with the attached snowplow and other installed equipment, complies with the Allowable Center of Gravity Trapezoid and the resulting front and rear weight distribution ratio, even though the actual front weight may be less than the Gross Axle Weight Rating of the front axle. In either case, the rear ballast weight should be securely attached in the cargo box or behind the rear axle of the vehicle in a manner which prevents it from moving during driving and stopping.

⚠ CAUTION

TORSION BAR ADJUSTMENT

To help avoid personal injury, refer to Z-height setting procedure before adjusting torsion bars. If torsion bars are adjusted for aftermarket equipment, be sure to return them to specification when the equipment is removed. Otherwise, a front shock absorber may dislodge and damage a front brake line. This could result in an accident when minimum stopping distances are required.

SPECIAL APPLICATIONS – FULLSIZE K SERIES (4X4)

Chevrolet/GMC Snowplow Prep Pkg. – Opt. VYU, GMT 900 K-Series Pickups – Single Rear Wheel (SRW) K10703, K10903, K20753, K20743, K20903, K20953 & K20943

Model		K10703 (1)	K10903 (1)	K20753	K20743	K20903	K20953	K20943
Cab		Regular	Regular	Extended	Crew	Regular	Extended	Crew
Wheelbase (inches)		119	133	143.5	153	133	157.5	167
Pickup Box Length (feet)		6.5	8	6.5	6.5	8	8	8
GVWR lb. (option code)		6400 (C7H)	6800 (C5U)	9200 (C6W)	9200 (C6W)	9200 (C6W)	9200 (C6W)	9200 (C6W)
GAWR lb.-Frt.		3950	3950	4800	4800	4800	4800	4800
Engine Availability with VYU:	opt. code							
Vortec 4.8L V8 SFI	LY2	S	A	N/A	N/A	N/A	N/A	N/A
Vortec 5.3L V8 SFI w/Active Fuel Management	LY5	A	A	N/A	N/A	N/A	N/A	N/A
Vortec 5.3L V8 SFI FlexFuel w/Active Fuel Management, capable of running on unleaded or up to 85% ethanol	LMG	A	A	N/A	N/A	N/A	N/A	N/A
Vortec 6.0L V8 SFI w/Active Fuel Management	LY6	N/A	N/A	B	B	B	B	B
Duramax 6.6L V8 Diesel	LMM	N/A	N/A	N/A	N/A	A	N/A	N/A
Base (B) Equipment Includes:								
Battery 600 CCA (Gasoline Engines)		B	B	B	B	B	B	B
Dual Batteries 730 CCA (6.6L Diesel Engine)	TUV	N/A	N/A	N/A	N/A	Y	N/A	N/A
Front Tow Hooks	V76	R	R	R	R	R	R	R
Floor Covering HD Rubber – Std. on Work Truck / Base without YE9	BG9	B & A	B & A	B & A	B & A	B & A	B & A	B & A
****IMPORTANT-Snow Plow Prep requires:**	**VYU**							
Solid, Smooth Ride, includes 35mm piston twin tube shocks and 32mm front stabilizer bar - STD on Work Truck	Z83	B & R	B & R	N/A	N/A	N/A	N/A	N/A
Suspension Package - Handling/Trailering, heavy-duty, includes 46mm piston monotube shocks	Z85	A	A	B	B	B	B	B
Suspension Package - Off-Road, includes 1.81" (46mm) shocks, off-road jounce bumpers, stabilizer bars (NZZ - Off-Road Skid Plate Incl.)	Z71	A	A	A	A	A	A	A

(1) Note: The all-new K1500 series front suspension coil over spring shock absorbers **REQUIRES Z83, Z85 or Z71 for Snow Plow Applications ***Currently under review
B-base vehicle / A-available / X-included in package / Y - included where applicable / N/A-not available on this model / R - required on this model.

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SPECIAL APPLICATIONS – FULLSIZE K SERIES (4X4)

Chevrolet/GMC Snowplow Prep Pkg. – Opt. VYU, GMT 900 K-Series Pickups – Single Rear Wheel (SRW) K10703, K10903, K20753, K20743, K20903, K20953 & K20943

Model		K10703 (1)	K10903 (1)	K20753	K20743	K20903	K20953	K20943
Cab		Regular	Regular	Extended	Crew	Regular	Extended	Crew
Wheelbase (inches)		119	133	143.5	153	133	157.5	167
Pickup Box Length (feet)		6.5	8	6.5	6.5	8	8	8
GVWR lb. (option code)		6400 (C7H)	6800 (C5U)	9200 (C6W)	9200 (C6W)	9200 (C6W)	9200 (C6W)	9200 (C6W)
GAWR lb.-Frt.		3950	3950	4800	4800	4800	4800	4800
Snow Plow Prep Pkg. Includes:	**VYU**							
Increased Front Spring rate 4WD	F60	R	R	N/A	N/A	N/A	N/A	N/A
Air cleaner, high-capacity	K47	A	A	N/A	N/A	N/A	N/A	N/A
External Eng. Oil Cooler - Only available with Vortec 6.0 L V8 SFI	KC4	N/A	N/A	R	R	R	R	R
Alternator 160 Amps - Gasoline Engines	KW1	X	X	X	X	X	X	X
Alternators - Dual 125 Amps - Diesel Engines	K76	N/A	N/A	Y	Y	Y	Y	Y
Provision for Roof Mtd. Emergency Light	TRW	X	X	X	X	X	X	X
Transmission Cooler (air to oil) Auto. only	KNP	X	X	R	R	R	R	R
***42mm Hole FOD with Rubber Grommet								
Suggested Optional Equipment:								
Battery 730 CCA - Gasoline Engines	6C5	A	A	A	A	A	A	A
3.73 Rear Axle Ratio	GT4	A	A	"B" Gas & "A" Diesel	B	B	B	B
4.10 Rear Axle Ratio	GT5	A	A	A	A	A	A	A
Skid Plate, "Off-Road" - Included with Z71	NZZ	A & Y	A & Y	A & Y	A & Y	A & Y	A & Y	A & Y
Engine Block Heater (Req'd for Canada - opt. Z49)	KO5	A	A	A	A	A	A	A
Locking Differential - Included with (NHT) Max Trailering Pkg. or (PCY) Towing Pkg. or axle ratio GT5	G80							
Rear Window Defogger (N/A with A48 on Ext. & Crew Cabs) (Reqs. C67 AC on Reg. Cabs)	C49	A	A	A	A	A	A	A
Sliding Rear Window not avail. with C49	A48	N/A	N/A	A	A	N/A	A	A
Windshield Washer Fluid System, Heated (Reqs. Opt. YE9 or SLT)	XA7	A	A	A	A	A	A	A

(1) Note: The all-new K1500 series front suspension coil over spring shock absorbers **REQUIRES Z83, Z85 or Z71 for Snow Plow Applications ***Currently under review
B-base vehicle / A-available / X-included in package / Y - included where applicable / N/A-not available on this model / R - required on this model.

SPECIAL APPLICATIONS – FULLSIZE K SERIES (4X4)

Chevrolet/GMC Snowplow Prep Pkg. – Opt. VYU, GMT 900 K-Series Pickups – (SRW) K30903, K30953, K30943 & (DRW) K30903, K30953, K30943

Model		K30903	K30953	K30943	K30903	K30953	K30943
Cab		Regular	Extended	Crew	Regular	Extended	Crew
Wheelbase (inches)		133	157.5	167	133	157.5	167
Pickup Box Length (feet)		8	8	8	8	8	8
GVWR lb. (option code)		9900 (C4M)	9900 (C4M)	9900 (C4M)	11400 (C7W)	11400 (C7W)	11400 (C7W)
GAWR lb.-Frt.		4800	4800	4800	4800	4800	4800
Engine Availability with VYU:	opt. code						
Vortec 4.8L V8 SFI	LY2	N/A	N/A	N/A	N/A	N/A	N/A
Vortec 5.3L V8 SFI w/Active Fuel Management	LY5	N/A	N/A	N/A	N/A	N/A	N/A
Vortec 5.3L V8 SFI FlexFuel w/Active Fuel Management, capable of running on unleaded or up to 85% ethanol	LMG	N/A	N/A	N/A	N/A	N/A	N/A
Vortec 6.0L V8 SFI w/Active Fuel Management	LY6	B	B	B	B	B	B
Duramax 6.6L V8 Diesel	LMM	A	N/A	N/A	A	N/A	N/A
Base (B) Equipment Includes:							
Battery 600 CCA (Gasoline Engines)		B	B	B	B	B	B
Dual Batteries 730 CCA (6.6L Diesel Engine)	TUV	Y	N/A	N/A	Y	N/A	N/A
Front Tow Hooks	V76	R	R	R	R	R	R
Floor Covering HD Rubber – Std. on Work Truck / Base without YE9	BG9	B & A	B & A	B & A	B & A	B & A	B & A
****IMPORTANT-Snow Plow Prep requires:**	**VYU**						
Solid, Smooth Ride, includes 35mm piston twin tube shocks and 32mm front stabilizer bar - STD on Work Truck	Z83	N/A	N/A	N/A	N/A	N/A	N/A
Suspension Package - Handling/Trailering, heavy-duty, includes 46mm piston monotube shocks	Z85	B	B	B	B	B	B
Suspension Package - Off-Road, includes 1.81" (46mm) shocks, off-road jounce bumpers, stabilizer bars (NZZ - Off-Road Skid Plate Incl.)	Z71	A	A	A	A	A	A

(1) Note: The all-new K1500 series front suspension coil over spring shock absorbers **REQUIRES Z83, Z85 or Z71 for Snow Plow Applications ***Currently under review
B-base vehicle / A-available / X-included in package / Y - included where applicable / N/A-not available on this model / R - required on this model.

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SPECIAL APPLICATIONS – FULLSIZE K SERIES (4X4)

Chevrolet/GMC Snowplow Prep Pkg. – Opt. VYU, GMT 900 K-Series Pickups – (SRW) K30903, K30953, K30943 & (DRW) K30903, K30953, K30943

Model		K30903	K30953	K30943	K30903	K30953	K30943
Cab		Regular	Extended	Crew	Regular	Extended	Crew
Wheelbase (inches)		133	157.5	167	133	157.5	167
Pickup Box Length (feet)		8	8	8	8	8	8
GVWR lb. (option code)		9900 (C4M)	9900 (C4M)	9900 (C4M)	11400 (C7W)	11400 (C7W)	11400 (C7W)
GAWR lb.-Frt.		4800	4800	4800	4800	4800	4800
Snow Plow Prep Pkg. Includes:	**VYU**						
Increased Front Spring rate 4WD	F60	N/A	N/A	N/A	N/A	N/A	N/A
Air cleaner, high-capacity	K47	N/A	N/A	N/A	N/A	N/A	N/A
External Eng. Oil Cooler - Only available with Vortec 6.0 L V8 SFI	KC4	R	R	R	R	R	R
Alternator 160 Amps - Gasoline Engines	KW1	X	X	X	X	X	X
Alternators - Dual 125 Amps - Diesel Engines	K76	Y	Y	Y	Y	Y	Y
Provision for Roof Mtd. Emergency Light	TRW	X	X	X	X	X	X
Transmission Cooler (air to oil) Auto. only	KNP	R	R	R	R	R	R
***42mm Hole FOD with Rubber Grommet							
Suggested Optional Equipment:							
Battery 730 CCA - Gasoline Engines	6C5	A	A	A	A	A	A
3.73 Rear Axle Ratio	GT4	B	B	B	B	B	B
4.10 Rear Axle Ratio	GT5	A	A	A	A	A	A
Skid Plate, "Off-Road" - Included with Z71	NZZ	A & Y	A & Y	A & Y	A & Y	A & Y	A & Y
Engine Block Heater (Req'd for Canada - opt. Z49)	KO5	A	A	A	A	A	A
Locking Differential - Included with (NHT) Max Trailering Pkg. or (PCY) Towing Pkg. or axle ratio GT5	G80						
Rear Window Defogger (N/A with A48 on Ext. & Crew Cabs) (Reqs. C67 AC on Reg. Cabs)	C49	A	A	A	A	A	A
Sliding Rear Window not avail. with C49	A48	N/A	A	A	N/A	A	A
Windshield Washer Fluid System, Heated (Reqs. Opt. YE9 or SLT)	XA7	A	A	A	A	A	A

(1) Note: The all-new K1500 series front suspension coil over spring shock absorbers **REQUIRES Z83, Z85 or Z71 for Snow Plow Applications ***Currently under review
B-base vehicle / A-available / X-included in package / Y - included where applicable / N/A-not available on this model / R - required on this model.

SPECIAL APPLICATIONS – FULLSIZE K SERIES (4X4)

Chevrolet/GMC Snowplow Prep Package – Option VYU, GMT 900

K-Series Pickups - Chassis-Cabs K31003, K31053 & K31403

Model		K31003	K31053	K31403
Cab		Regular	Extended	Regular
Wheelbase (inches)		137	161.5	161.5
Pickup Box Length (feet)		cc	cc	cc
GVWR lb. (option code)		12000 (C7L)	12000 (C7L)	12000 (C7L)
GAWR lb.-Frt.		4800	4800	4800
Engine Availability with VYU:	opt. code			
Vortec 4.8L V8 SFI	LY2	N/A	N/A	N/A
Vortec 5.3L V8 SFI w/Active Fuel Management	LY5	N/A	N/A	N/A
Vortec 5.3L V8 SFI FlexFuel w/Active Fuel Management, capable of running on unleaded or up to 85% ethanol	LMG	N/A	N/A	N/A
Vortec 6.0L V8 SFI w/Active Fuel Management	LY6	B	B	B
Duramax 6.6L V8 Diesel	LMM	A	N/A	N/A
Base (B) Equipment Includes:				
Battery 600 CCA (Gasoline Engines)		B	B	B
Dual Batteries 730 CCA (6.6L Diesel Engine)	TUV	Y	N/A	N/A
Front Tow Hooks	V76	R	R	R
Floor Covering HD Rubber – Std. on Work Truck / Base without YE9	BG9	B & A	B & A	B & A
****IMPORTANT-Snow Plow Prep requires:**	**VYU**			
Solid, Smooth Ride, includes 35mm piston twin tube shocks and 32mm front stabilizer bar - STD on Work Truck	Z83	N/A	N/A	N/A
Suspension Package - Handling/Trailering, heavy-duty, includes 46mm piston monotube shocks	Z85	B	B	B
Suspension Package - Off-Road, includes 1.81" (46mm) shocks, off-road jounce bumpers, stabilizer bars (NZZ - Off-Road Skid Plate Incl.)	Z71	A	A	A

(1) Note: The all-new K1500 series front suspension coil over spring shock absorbers **REQUIRES Z83, Z85 or Z71 for Snow Plow Applications ***Currently under review
B-base vehicle / A-available / X-included in package / Y - included where applicable / N/A-not available on this model / R - required on this model.

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SPECIAL APPLICATIONS – FULLSIZE K SERIES (4X4)

Chevrolet/GMC Snowplow Prep Package – Option VYU, GMT 900

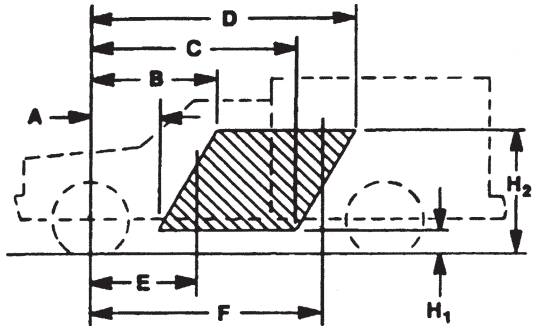
K-Series Pickups - Chassis-Cabs K31003, K31053 & K31403

Model		K31003	K31053	K31403
Cab		Regular	Extended	Regular
Wheelbase (inches)		137	161.5	161.5
Pickup Box Length (feet)		cc	cc	cc
GVWR lb. (option code)		12000 (C7L)	12000 (C7L)	12000 (C7L)
GAWR lb.-Frt.		4800	4800	4800
Snow Plow Prep Pkg. Includes:	**VYU**			
Increased Front Spring rate 4WD	F60	N/A	N/A	N/A
Air cleaner, high-capacity	K47	N/A	N/A	N/A
External Eng. Oil Cooler - Only available with Vortec 6.0 L V8 SFI	KC4	R	R	R
Alternator 160 Amps - Gasoline Engines	KW1	X	X	X
Alternators - Dual 125 Amps - Diesel Engines	K76	Y	Y	Y
Provision for Roof Mtd. Emergency Light	TRW	X	X	X
Transmission Cooler (air to oil) Auto. only	KNP	R	R	R
***42mm Hole FOD with Rubber Grommet				
Suggested Optional Equipment:				
Battery 730 CCA - Gasoline Engines	6C5	A	A	A
3.73 Rear Axle Ratio	GT4	B	B	B
4.10 Rear Axle Ratio	GT5	A	A	A
Skid Plate, “Off-Road” - Included with Z71	NZZ	A & Y	A & Y	A & Y
Engine Block Heater (Req’d for Canada - opt. Z49)	KO5	A	A	A
Locking Differential - Included with (NHT) Max Trailering Pkg. or (PCY) Towing Pkg. or axle ratio GT5	G80			
Rear Window Defogger (N/A with A48 on Ext. & Crew Cabs) (Reqs. C67 AC on Reg. Cabs)	C49	A	A	A
Sliding Rear Window not avail. with C49	A48	A	A	A
Windshield Washer Fluid System, Heated (Reqs. Opt. YE9 or SLT)	XA7	A	A	A

(1) Note: The all-new K1500 series front suspension coil over spring shock absorbers **REQUIRES Z83, Z85 or Z71 for Snow Plow Applications ***Currently under review
B-base vehicle / A-available / X-included in package / Y - included where applicable / N/A-not available on this model / R - required on this model.

SPECIAL APPLICATIONS – FULLSIZE K SERIES (4X4)

CMVSS105 and FMVSS105 Allowable Center of Gravity Calculation



C/G of vehicle in CMVSS or FMVSS unladen condition [Curb + 181.4 kg. (400 lb) or Curb + 226.8 kg. (500 lb) as defined by CMVSS 105 and FMVSS 105] must be inside shaded area – that is, the C/G must be within the trapezoid formed by the coordinates A, B, C, D, H_1, & H_2, plus the C/G must be to the rear of vertical line E and forward of vertical line F.

The center of gravity of the total vehicle falls within the areas referenced on the "ALLOWABLE CENTER OF GRAVITY CHART" that follows. Instructions for determining the allowable center of gravity variation are listed below:

These charts detail the envelope of allowable center of gravity variation for completed vehicles. This is significant for the lightly loaded portion of FMVSS 105, which is defined as curb plus 181.4 kg (400 lb) distributed in the driver-passenger area of the vehicle for vehicles with GVWR of 4536 kg (10,000 lb) or less or as curb plus 226.8 kg (500 lb) distributed in the driver-passenger area of the vehicle for vehicles with GVWR greater than 4536 kg (10,000 lb).

The lightly loaded center of gravity complete vehicles needs to be restricted so it will meet FMVSS 105 stopping distances. The laden center of gravity does not need to be specified as it is controlled within the CMVSS 105 and FMVSS 105 test procedure by specific instructions as to how ballast is to be placed (while height is not controlled, it is assumed that for test purposes it would be reasonable).

For Body Builder's use, the center of gravity location can be approximated by the following formula:

$$d = \frac{[W_{rc} + W_{rb} + [(H_p)(W_p)/WB]]\ WB}{W_t}$$

$$h = \frac{[h_1 W_c + h_2 W_b + (h_3)(W_p)]}{W_t}$$

d = horizontal distance from front wheels to completed vehicle center of gravity cm (in)

(continued on next page)

CMVSS 105 and FMVSS 105 Allowable Center of Gravity Calculation (continued)

h	=	vertical distance from ground to completed vehicle center of gravity cm (in)
W_{rc}	=	rear component of bare chassis weight kg (lb)
W_{rb}	=	rear component of body weight kg (lb)
WB	=	vehicle wheelbase cm (in)
W_t	=	total weight of chassis and body kg (lbs) plus 181.4 kg (400 lb) for vehicles with GVWR of 4536 kg (10,000 lb) or less
W_t	=	total weight of chassis and body kg (lbs) plus 226.8 kg (500 lb) for vehicles with GVWR greater than 4536 kg (10,000 lb)
h_1	=	center of gravity height from ground of the bare chassis = 71.1 cm (28 in)
W_c	=	total weight of chassis kg (lb)
h_2	=	center of gravity height of body from ground cm (in)
W_b	=	total weight of body kg (lb)
W_p	=	181.4 kg (400 lb) amount from lightly loaded definition that is evenly distributed in driver-passenger area of vehicle for vehicles with GVWR of 4536 kg (10,000 lb) or less
W_p	=	226.8 kg (500 lb) amount from lightly loaded definition that is evenly distributed in driver-passenger area of vehicle for vehicles with GVWR greater than 4536 kg (10,000 lb)
H_p	=	146.7 cm (57.76 in) horizontal distance from front axle to center of gravity of 181.4 kg (400 lb) or 226.8 kb (500 lb) evenly distributed in driver-passenger area of vehicle
h_3	=	94.8 cm (37.32 in) vertical center of gravity height of 181.4 kg (400 lb) evenly distributed in driver-passenger area for vehicles with 3900 kg (8600 lb) GVWR
h_3	=	99.9 cm (39.33 in) vertical center of gravity height of 181.4 kg (400 lb) evenly distributed in driver-passenger area for vehicles with 3856, 4173 and 4491 kg (8500, 9200 and 9900 lb) GVWR
h_3	=	99.9 cm (39.33 in) vertical center of gravity height of 226.8 kg (500 lb) evenly distributed in driver-passenger area for vehicles with 5171 - 5443 kg (11,400 - 12,000 lb) GVWR

NOTE: An alternate method of center of gravity calculation may be found in the current issue of the General Motors Body Builders Book in the general instruction section and in SVIE Bulletin #39.

SPECIAL APPLICATIONS – FULLSIZE K SERIES (4X4)

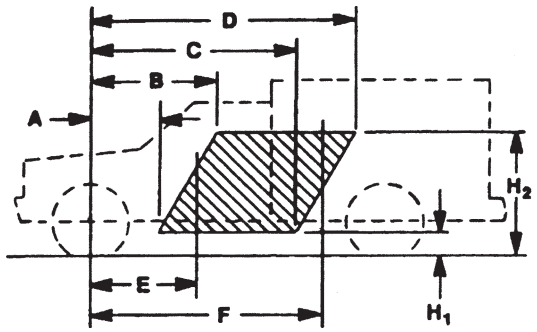
CMVSS105 and FMVSS105 Allowable Center of Gravity Charts

					Snowplow Prep Package Vehicles							
					Coordinates of Allowable C/G Variation at CMSS/FMSS Unladen Curb Wt. + 181.4 kg (400 lbs.) or 226.8 kg (500 lbs.) as defined by CMVSS & FMVSS 105						Forward C/G Limit	Rearward C/G Limit
Model	GVWR Kg (lb)	Brake System	Wheelbase mm (in)	Rear Wheel	H_1 mm (in)	H_2 mm (in)	A mm (in)	B mm (in)	C mm (in)	D mm (in)	E mm (in)	F mm (in)
K20753	4173 (9200)	JH6	3645 (143.5)	SRW	304.8 (12.0)	1219.2 (48.0)	1208 (47.6)	1462 (57.6)	2606 (102.6)	2860 (112.6)	1208 (47.6)	2860 (112.6)
K20743	4173 (9200)	JH6	3886 (153.0)	SRW	304.8 (12.0)	1219.2 (48.0)	1282 (50.5)	1536 (60.5)	2773 (109.2)	3026 (119.1)	1282 (50.5)	3026 (119.1)
K20903	4173 (9200)	JH6	3378 (133.0)	SRW	304.8 (12.0)	1219.2 (48.0)	1126 (44.3)	1379 (54.3)	2421 (95.3)	2675 (105.3)	1126 (44.3)	2675 (105.3)
K20953	4173 (9200)	JH6	4000 (157.5)	SRW	304.8 (12.0)	1219.2 (48.0)	1317 (51.9)	1571 (61.9)	2852 (112.3)	3105 (122.2)	1317 (51.9)	3105 (122.2)
K20943	4173 (9200)	JH6	4242 (167.0)	SRW	304.8 (12.0)	1219.2 (48.0)	1392 (54.8)	1646 (64.8)	3019 (118.9)	3273 (128.9)	1392 (54.8)	3273 (128.9)
K30903	4490.5 (9900)	JH6	3378 (133.0)	SRW	304.8 (12.0)	1219.2 (48.0)	1126 (44.3)	1379 (54.3)	2421 (95.3)	2675 (105.3)	1126 (44.3)	2675 (105.3)
K30953	4490.5 (9900)	JH6	4000 (157.5)	SRW	304.8 (12.0)	1219.2 (48.0)	1317 (51.9)	1571 (61.9)	2852 (112.3)	3105 (122.2)	1317 (51.9)	3105 (122.2)
K30943	4490.5 (9900)	JH6	4242 (167.0)	SRW	304.8 (12.0)	1219.2 (48.0)	1392 (54.8)	1646 (64.8)	3019 (118.9)	3273 (128.9)	1392 (54.8)	3273 (128.9)
K30903	5171 (11,400)	JH7	3378 (133.0)	DRW	304.8 (12.0)	1219.2 (48.0)	939 (37.0)	1150 (45.3)	2580 (101.6)	2792 (109.9)	939 (37.0)	2792 (109.9)
K30953	5171 (11,400)	JH7	4000 (157.5)	DRW	304.8 (12.0)	1219.2 (48.0)	1099 (43.3)	1310 (51.6)	3042 (119.8)	3254 (128.1)	1099 (43.3)	3254 (128.1)
K30943	5171 (11,400)	JH7	4242 (167.0)	DRW	304.8 (12.0)	1219.2 (48.0)	1161 (45.7)	1373 (54.1)	3222 (126.9)	3434 (135.2)	1161 (45.7)	3434 (135.2)
K31003	5443 (12,000)	JH7	3480 (137.0)	DRW	304.8 (12.0)	1219.2 (48.0)	965 (38.0)	1177 (46.3)	2656 (104.6)	2868 (112.9)	965 (38.0)	2868 (112.9)
K31053	5443 (12,000)	JH7	4102 (161.5)	DRW	304.8 (12.0)	1219.2 (48.0)	1125 (44.3)	1337 (52.6)	3118 (122.8)	3330 (131.1)	1125 (44.3)	3330 (131.1)
K31403	5443 (12,000)	JH7	4102 (161.5)	DRW	304.8 (12.0)	1219.2 (48.0)	1125 (44.3)	1337 (52.6)	3118 (122.8)	3330 (131.1)	1125 (44.3)	3330 (131.1)

SRW = Single Rear Wheel
DRW = Dual Rear Wheel
C/G = Center of Gravity

Brake Systems:
Hydraulic Powered Boosters JH6, JH7

CMVSS135 and FMVSS135 Allowable Center of Gravity Calculation



C/G of vehicle in CMVSS or FMVSS unladen condition [Curb + 181.4 kg. (400 lb)] must be inside shaded area – that is, the C/G must be within the trapezoid formed by the coordinates A, B, C, D, H_1, & H_2, plus the C/G must be to the rear of vertical line E and forward of vertical line F.

The center of gravity of the total vehicle falls within the areas referenced on the "ALLOWABLE CENTER OF GRAVITY CHART" that follows. Instructions for determining the allowable center of gravity variation are listed below:

These charts detail the envelope of allowable center of gravity variation for completed vehicles. This is significant for the lightly loaded portion of CMVSS 135 and FMVSS 135, which is defined as curb plus 181.4 kg (400 lb) distributed in the driver-passenger area of the vehicle.

The lightly loaded center of gravity complete vehicles needs to be restricted so it will meet CMVSS 135 and FMVSS 135 stopping distances. The laden center of gravity does not need to be specified as it is controlled within the CMVSS 135 and FMVSS 135 test procedure by specific instructions as to how ballast is to be placed (while height is not controlled, it is assumed that for test purposes it would be reasonable).

For Body Builder's use, the center of gravity location can be approximated by the following formula:

$$d = \frac{[W_{rc} + W_{rb} + [(H_p)(W_p)/WB]]\ WB}{W_t}$$

$$h = \frac{[h_1 W_c + h_2 W_b + (h_3)(W_p)]}{W_t}$$

d = horizontal distance from front wheels to completed vehicle center of gravity cm (in)
h = vertical distance from ground to completed vehicle center of gravity cm (in)
W_{rc} = rear component of bare chassis weight kg (lb)
W_{rb} = rear component of body weight kg (lb)

(continued on next page)

CMVSS135 and FMVSS135 Allowable Center of Gravity Calculation (continued)

WB	=	vehicle wheelbase cm (in)
W_t	=	total weight of chassis and body kg (lbs) plus 181.4 kg (400 lb)
h_1	=	center of gravity height from ground of the bare chassis = 71.1 cm (28 in)
W_c	=	total weight of chassis kg (lb)
h_2	=	center of gravity height of body from ground cm (in)
W_b	=	total weight of body kg (lb)
W_p	=	181.4 kg (400 lb) amount from lightly loaded definition that is evenly distributed in driver-passenger area of vehicle
H_p	=	146.7 cm (57.76 in) horizontal distance from front axle to center of gravity of 181.4 kg (400 lb) evenly distributed in driver-passenger area of vehicle
h_3	=	94.8 cm (37.72 in) vertical center of gravity height of 181.4 kg (400 lb) evenly distributed in driver-passenger area for vehicles with 3500 kg (7716 lb) GVWR or less

NOTE: An alternate method of center of gravity calculation may be found in the current issue of the General Motors Body Builders Book in the general instruction section and in SVIE Bulletin #39.

CMVSS135 and FMVSS135 Allowable Center of Gravity Charts

					Snowplow Prep Package Vehicles							
					Coordinates of Allowable C/G Variation at CMSS/FMSS Unladen Curb Wt. + 181.4 kg (400 lbs.) or 226.8 kg (500 lbs.) as defined by CMVSS & FMVSS 105						Forward C/G Limit	Rearward C/G Limit
Model	GVWR Kg (lb)	Brake System	Wheelbase mm (in)	Rear Wheel	H_1 mm (in)	H_2 mm (in)	A mm (in)	B mm (in)	C mm (in)	D mm (in)	E mm (in)	F mm (in)
K10703	2903 (6400)	JF7	3022.6 (119.0)	SRW	305 (12.0)	1219 (48.0)	904 (35.6)	1585 (62.4)	1397 (55.0)	2078 (81.8)	1041 (41.0)	2078 (81.8)
K10903	2903 (6400)	JF7	3378.2 (133.0)	SRW	305 (12.0)	1219 (48.0)	980 (38.6)	1661 (65.4)	1539 (60.6)	2215 (87.2)	1143 (45.0)	2215 (87.2)

SRW = Single Rear Wheel
DRW = Dual Rear Wheel
C/G = Center of Gravity

Brake Systems:
Hydraulic Powered Boosters JH6, JH7